Fishes of the Tigris-Euphrates Basin: A Critical Checklist

Brian W. Coad

Canadian Museum of Nature

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Table of Contents

List of Figures	4
Abstract	5
Résumé	7
Introduction	9
List of Fishes from the Tigris-Euphrates Basin	13
Rejected Records	23
Marine Fishes Entering Freshwater	25
Acknowledgments	29
Bibliography	31

List of Figures

Figure 1. Map of the Tigris-Euphrates basin 10

Figure 2. *Carcharhinus leucas* 13

Figure 3. *Barilius mesopotamicus* 14

Figure 4. *Capoeta aculeata* 15

Figure 5. *Carassius auratus* 16

Figure 6. *Ctenopharyngodon idella* 16

Figure 7. *Garra rufa* 17

Figure 8. *Hypophthalmichthys molitrix* 17

Figure 9. *Leuciscus lepidus* 18

Figure 10. *Glyptothorax silviae* 19

Figure 11. *Heteropneustes fossilis* 19

Figure 12. *Aphanius vladykovi* 20

Figure 13. *Gambusia holbrooki* 21

Figure 14. *Mastacembelus mastacembelus* 21

Abstract

A check-list of the freshwater fishes of the Tigris-Euphrates basin is given. This is the major drainage basin in southwest Asia. No previous list encompasses the whole basin and partial lists are replete with errors. The fauna comprises 12 native families with about 66 species. A list of marine fishes penetrating freshwaters from the Persian Gulf is appended. A brief bibliography summarises systematic works on the ichthyofauna of this basin.

Résumé

Une liste des poissons dulçaquicoles du bassin du Tigre et de l'Euphrate est présentée. Ce bassin est le bassin de déversement principal du sud-ouest asiatique. Aucune liste antérieure n'inclus la totalité du bassin et les listes partielles comportent de nombreuses erreurs. La faune inclus 12 familles indigènes avec environ 66 espèces. Une liste des poissons marins qui s'aventurent en eau douce en provenance du golfe Persique est en appendice. Une courte bibliographie est ajoutée, qui résume les ouvrages de systématique principaux.

Introduction

The Tigris-Euphrates basin is the major drainage basin of the Middle East between the African Nile and the Indian Indus. Its ichthyofauna is therefore of some interest, both for what is found there and for what is not. A number of lists exist for parts of this basin but none encompass the the whole drainage basin as defined below and most lists suffer from an uncritical compilation. This list is based on a review of literature sources and examination of specimens collected by me or deposited in museums.

The two principal rivers of this basin are the Tigris and the Euphrates which join to form the Shatt-al-Arab and enter the head of the Persian Gulf. The Euphrates River is known as the Firat Nehri in Turkey and as the Nahr al Furat in Iraq and Syria. The Euphrates has two major headstreams in Turkey, the Euphrates proper or Karasu and the Murat Nehri. Their sources lie between the endorheic Van Gölü and the Black Sea. The ichthyofauna of Lake Van is not included in this list. The Karasu rises about 22 km north of Erzurum and flows about 460 km in a southwesterly direction to join the Murat Nehri northeast of Keban at the Keban Dam. The Murat Nehri rises 65 km southwest of Agri Dagi (Mount Ararat) and flows about 610 km west to join the Karasu and flow in a southwesterly direction. In southern Anatolia, the Euphrates flows within 160 km of the Mediterranean Sea before heading southeast across the Badiyat Ash Sham (Syrian Desert) into Iraq to join the Tigris River northwest of Basrah. There are numerous small tributaries to the Euphrates basin in the mountains of Turkey but in Syria it receives only two left bank tributaries of note, the Nahr Balikh and the Nahr al Khabur. The former is dry for most of the year. The total length of the Euphrates River is over 2700 km.

The Tigris River rises in the Hazar Gölü which lies south of Elazig in Turkey between the Murat Nehri and the Euphrates. It flows southeast, forming a short section of the border of Syria with Turkey before entering Iraq to parallel, roughly, the course of the Euphrates River. It is a larger and swifter river than the the Euphrates since it receives a number of left bank tributaries from the Zagros Mountains, notably the Nahr az Zab al Kabir (Great Zab), the Nahr az Zab as Saghir (Little Zab) and the Nahr Diyala. The Tigris River is over 1900 km long.

The Shatt-al-Arab flows for about 200 km in a southeasterly direction and forms part of the Iran-Iraq border. It receives the Rud-e Karun as a major left bank tributary.

There are a number of dams, lakes and marshes in this system and the lowlands of Iraq and Iran are criss-crossed with irrigation canals. The major dams in Turkey are the Keban Dam near Elazig at the confluence of the Karasu and Murat Nehri and the Devegeçidi Dam on the Tigris River near Diyarbakir. The Hazar Gölü near Elazig is the only lake of note. Syria has the Assad Dam on the Euphrates River. Iraq has the

Dokan Reservoir on the Little Zab and the Darband-i Khan Reservoir on the Nahr Diyala. The largest marsh is the Hawr al Hammar near Basrah which may attain a surface area of 5200 sq. km. but fluctuates greatly in area. Other marshes or lakes include the Hawr al Habbaniyah and the Murkhafad al Tharthar west of Baghdad and there are others along the course of the Tigris River. In Iran, dams include one on the Dez River near Dezful and there are extensive marshes in the south and straddling the border with Iraq. Some aspects of the biology of this basin are given in Rzóska (1980).

The list is comprised of three parts. The first part is the main list made up of all the species recorded from the Tigris-Euphrates basin including principal synonyms. Some of the synonyms are for localities outside the Tigris-Euphrates basin but are included here because of the extensive mis-use of names in the Middle East. Some of the species are of marine origin and are included, subjectively, because they penetrate far

Figure 1. Map of the Tigris-Euphrates basin

inland, breed in freshwater or are commonly caught. A second list of "Rejected Records" gives valid species reported from this basin apparently in error through misidentification or a misunderstanding of the literature. A number of species reported from Iraq appear to have been included based on Beckman's (1962) list for Syrian fishes on the assumption that they would eventually be discovered in Iraq. However Beckman's list included species endemic to drainages outside the Tigris-Euphrates basin. A third list includes all those marine species reported from freshwaters. The arrangement of orders and families follows Nelson (1984) which provides a recent review of higher fish classification.

Species marked with a ? are of doubtful validity, those marked with a * are of uncertain presence and those with a # are introduced species (it is not known if all are still present).

List of Fishes from the Tigris-Euphrates Basin

Class 1. Chondrichthyes
Order 1. Lamniformes
Family 1. Carcharhinidae

1. *Carcharhinus leucas* (Valenciennes in Müller and Henle, 1839)
A number of shark species have been reported as entering rivers of the Tigris-Euphrates basin as far as Baghdad but a recent revision of the genus *Carcharhinus* by Garrick (1982) suggests that only this species occurs there and Compagno (1984) concurs. See also Coad and Papahn (1988) and Coad and Al-Hassan (1989) for freshwater shark attacks.

Class 2. Osteichthyes
Order 2. Clupeiformes
Family 2. Clupeidae

1. *Tenualosa ilisha* (Hamilton, 1822)

Order 3. Cypriniformes
Family 3. Cyprinidae

1. # *Acanthalburnus microlepis* (De Filippi, 1863)
2. *Acanthobrama marmid* Heckel, 1843
Synonyms: *A. arrhada* Heckel, 1843; *A. cupida* Heckel, 1843; *A. marmid orontis* Berg, 1949
3. *Alburnoides bipunctatus* (Bloch, 1782)
This genus may be a synonym of *Alburnus*.
4. ? *Alburnus akili* Battalgil, 1942
5. ? *Alburnus caeruleus* Heckel, 1843
6. ? *Alburnus capito* Heckel, 1843
Probably a synonym of *Chalcalburnus mossulensis*.
7. ? *Alburnus heckeli* Battalgil, 1944
May be a subspecies of *A. akili*.

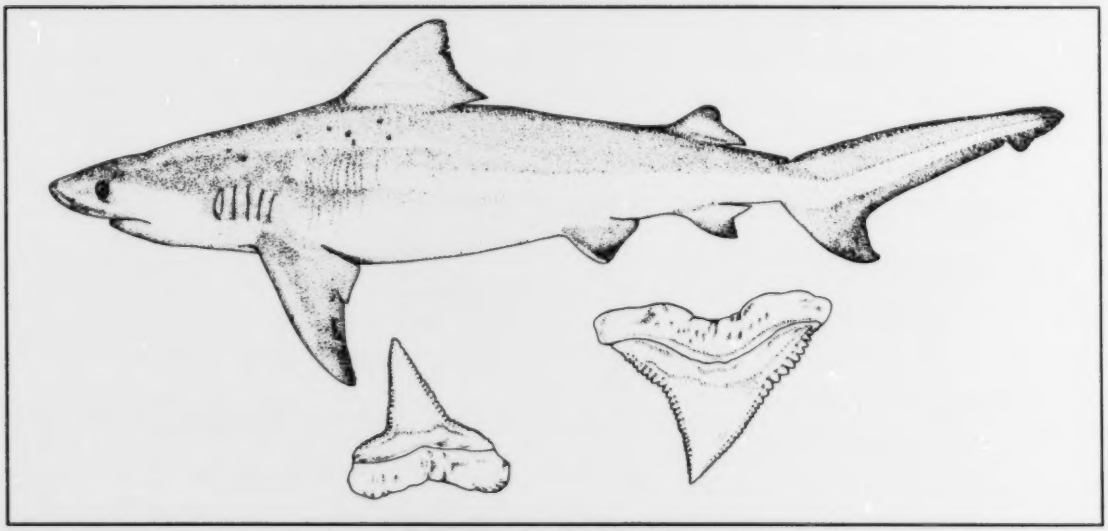

Figure 2. *Carcharinus leucas*

8. ? *Aspius vorax* Heckel, 1843
May be a synonym or subspecies of *Aspius aspius* (Linnaeus, 1758)
The genus *Barbus* has been split into a number of genera which have not met with general acceptance. These include *Tor* Gray, 1834 *sensu* Karaman, 1971, *Systomus* McClelland, 1838, *Luciobarbus* Heckel, 1843, *Barynotus* Günther, 1868, *Bertinius* Fang, 1943, *Bertinichthys* Whitley, 1953, *Mesopotamichthys* Karaman, 1971, *Carasobarbus* Karaman, 1971 and *Kosswigobarbus* Karaman, 1971.
9. ? *Barbus barbulus* Heckel, 1849
Probably a synonym of *Barbus pectoralis*.
10. *Barbus esocinus* (Heckel, 1843)
May be a synonym of *B. xanthopterus*.
Synonym: *Labeobarbus euphrati* Sauvage, 1882
11. *Barbus grypus* Heckel, 1843
Synonym: *Labeobarbus kotschyi* Heckel, 1843
12. *Barbus kosswigi* (Ladiges, 1960)
13. ? *Barbus lacerta* Heckel, 1843
Synonyms: *Barbus scincus* Heckel, 1843; *B. cyri* De Filippi, 1865
14. *Barbus luteus* (Heckel, 1843)
Synonyms: *Systomus albus* Heckel, 1843; *S. albus* var. *alpina* Heckel, 1849; *Barbus parieschanica* Wossughi, Khoshzahmat and Etemadfar, 1982
15. ? *Barbus mystaceus* (Pallas, 1811)
16. *Barbus pectoralis* Heckel, 1843
Synonyms: *Barbus kersin* Heckel, 1843; *B. perniciosus* Heckel, 1843; ? *Luciobarbus schejch* Heckel, 1843; ? *Barbus barbulus* Heckel, 1849; *Labeobarbus orontis* Sauvage, 1882.
B. rajanorum Heckel, 1843 is a hybrid of this species and *Capoeta damascina* (F. Krupp, in. litt., 1986).
17. ? *Barbus plebejus* Bonaparte, 1832
B. plebejus kosswigi Karaman, 1971 is described from the upper Tigris River basin in Turkey.
18. *Barbus sharpeyi* Günther, 1874
Synonym: *Barbus faoensis* Günther, 1895

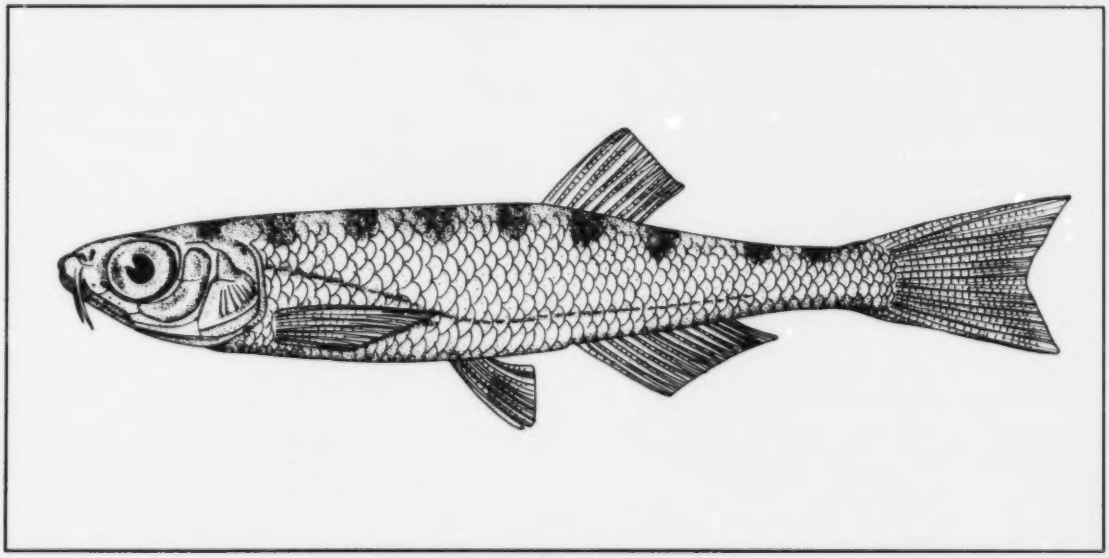

Figure 3. *Barilius mesopotamicus*

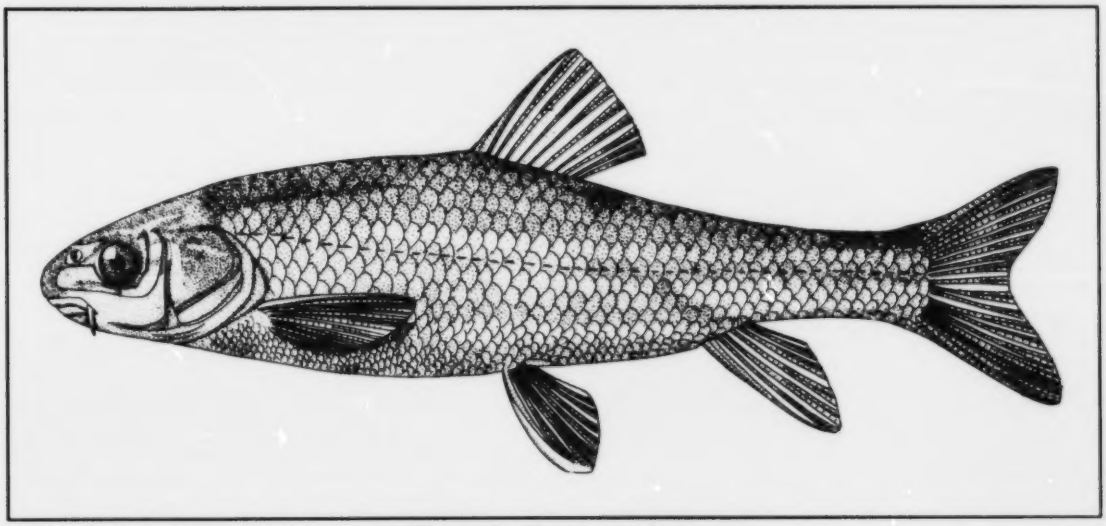

Figure 4. *Capoeta aculeata*

19. *Barbus subquincunciatus* Günther, 1868
20. *Barbus xanthopterus* (Heckel, 1843)
21. *Barilius mesopotamicus* Berg, 1932
Has been placed in the genus *Leucaspius* Heckel and Kner, 1858 by Howes (1980) but this is not considered correct here and in Bianco and Banarescu (1982).
22. *Caecocypris basimi* Banister and Bunni, 1980
23. *Capoeta aculeata* (Valenciennes in Cuvier and Valenciennes, 1844)
Synonyms: *Scaphiodon macrolepis* Heckel, 1849; *Varicorhinus bergi* Derzhavin, 1929.
24. *Capoeta barroisi* (Lortet in Barrois, 1894)
C. b. persica Karaman, 1969 and *C. b. mandica* Bianco and Banarescu, 1982 are recently described subspecies from the Tigris and nearby coastal Iran basins respectively.
25. * *Capoeta capoeta* (Gueldenstaedt, 1773)
Records of this species are probably *C. damascina* with a low scale count (F. Krupp, in. litt., 1986).
26. *Capoeta damascina* (Valenciennes in Cuvier and Valenciennes, 1842)
Synonyms: *Scaphiodon fratercula* Heckel, 1843; *S. peregrinorum* Heckel, 1843; *S. socialis* Heckel, 1843; *Chondrostoma syriacum* Valenciennes in Cuvier and Valenciennes, 1844; *?Scaphiodon umbla* Heckel, 1843; *S. amir* Heckel, 1849; *S. niger* Heckel, 1849; *S. saadii* Heckel, 1849; *S. chebisiensis* Keyserling, 1861; *S. rostratus* Keyserling, 1861; *Barbus belayewi* Menon, 1956; *Capoeta capoeta intermedia* Bianco and Banarescu, 1982 (*non Capoeta intermedia* Temminck and Schlegel, 1846 = *Acheilognathus lanceolata* (Temminck and Schlegel, 1846)(see Boeseman, 1947)). The synonymy of *Barbus belayewi* is suggested by F. Krupp (in. litt., 1986) and W. Rainboth (pers. comm., 1986).
27. *Capoeta trutta* (Heckel, 1843)
28. # *Carassius auratus* (Linnaeus, 1758)

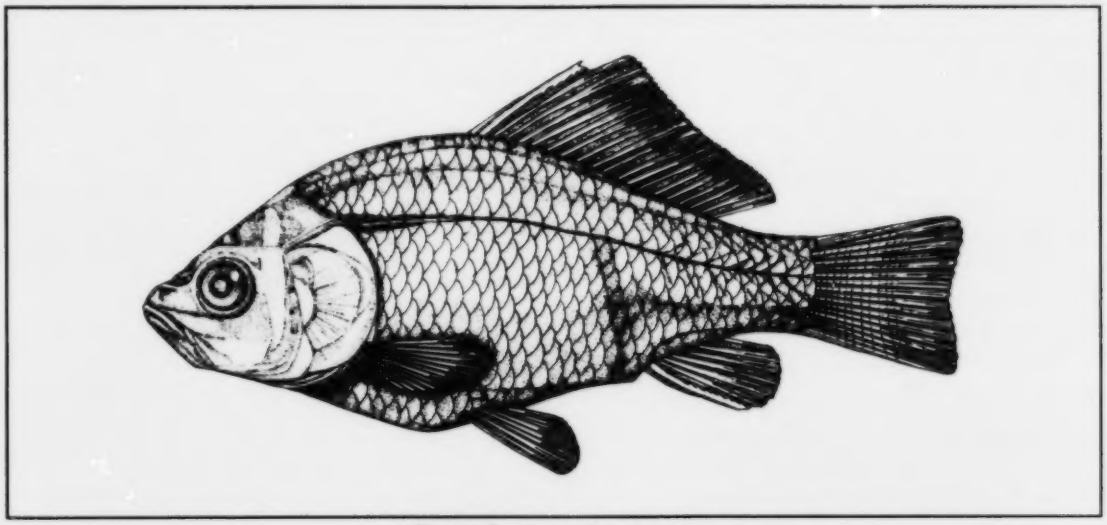

Figure 5. *Carassius auratus*

29. *Chalcalburnus mossulensis* (Heckel, 1843)
Synonyms: *Alburnus caudimacula* Heckel, 1849; *A. iblis* Heckel, 1849; *A. megacephalus* Heckel, 1849; *A. schejtan*, Heckel, 1849; *Leuciscus maxillaris* Valenciennes in Cuvier and Valenciennes, 1844; ? *A. capito* Heckel, 1843.

Chalcalburnus may be a synonym of *Alburnus*.

30. *Chondrostoma regium* (Heckel, 1843)
Synonym: *Chondrochilus regius* Heckel, 1843

31. # *Ctenopharyngodon idella* (Valenciennes in Cuvier and Valenciennes, 1844)

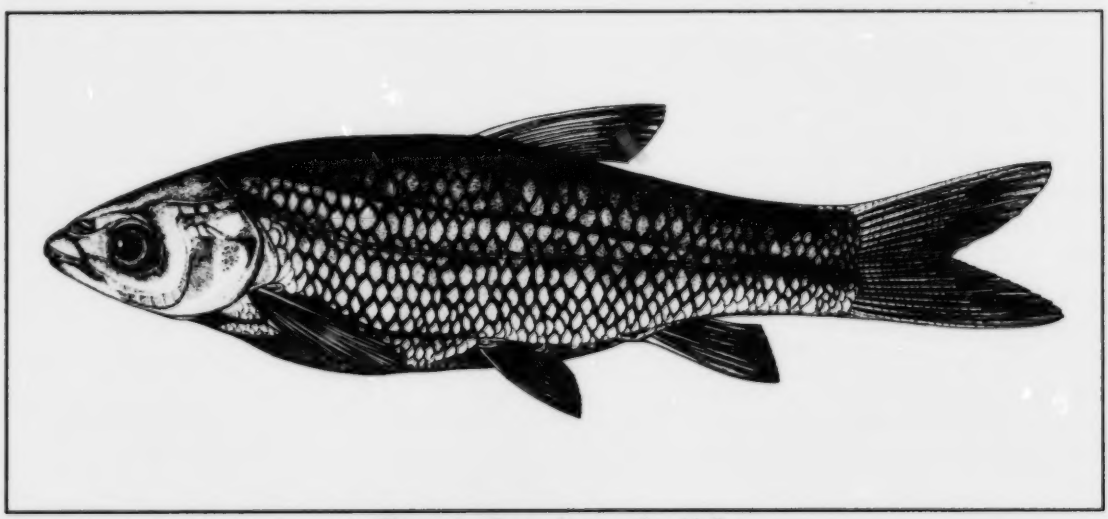

Figure 6. *Ctenopharyngodon idella*

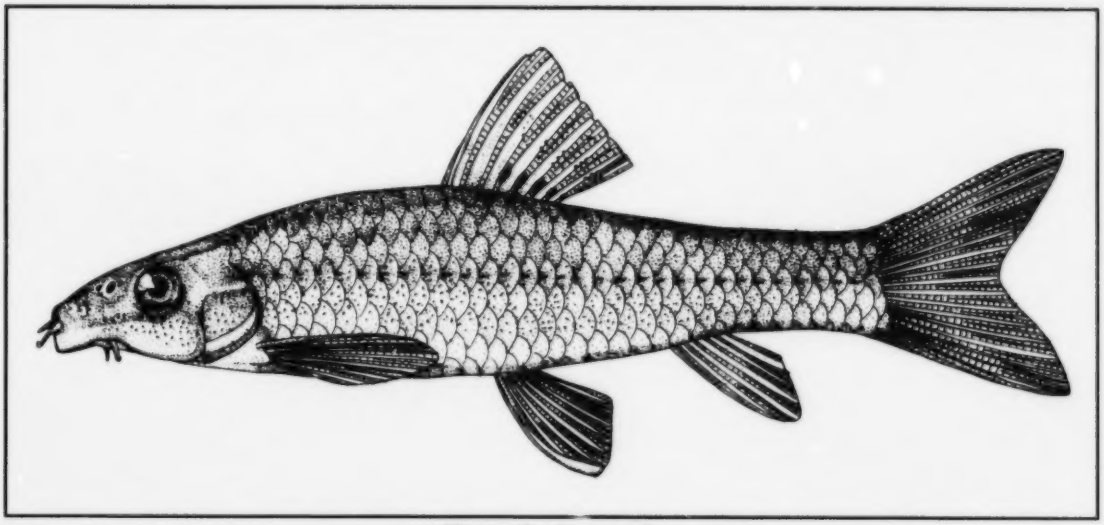

Figure 7. *Garra rufa*

32. *Cyprinion kais* Heckel, 1843
Synonym: *Cyprinion cypris* Heckel, 1843
33. *Cyprinion macrostomum* Heckel, 1843
Synonym: *C. neglectus* Heckel, 1849
34. # *Cyprinus carpio* Linnaeus, 1758
35. *Garra rufa* (Heckel, 1843)
Synonyms: *Discognathus obtusus* Heckel, 1843; *D. crenulatus* Heckel, 1849; *G. rufa gymnothorax* Berg, 1949
36. *Garra variabilis* (Heckel, 1843)
37. *Hemigrammocapoeta elegans* (Günther, 1868)
38. # *Hypophthalmichthys molitrix* (Valenciennes in Cuvier and Valenciennes, 1844)

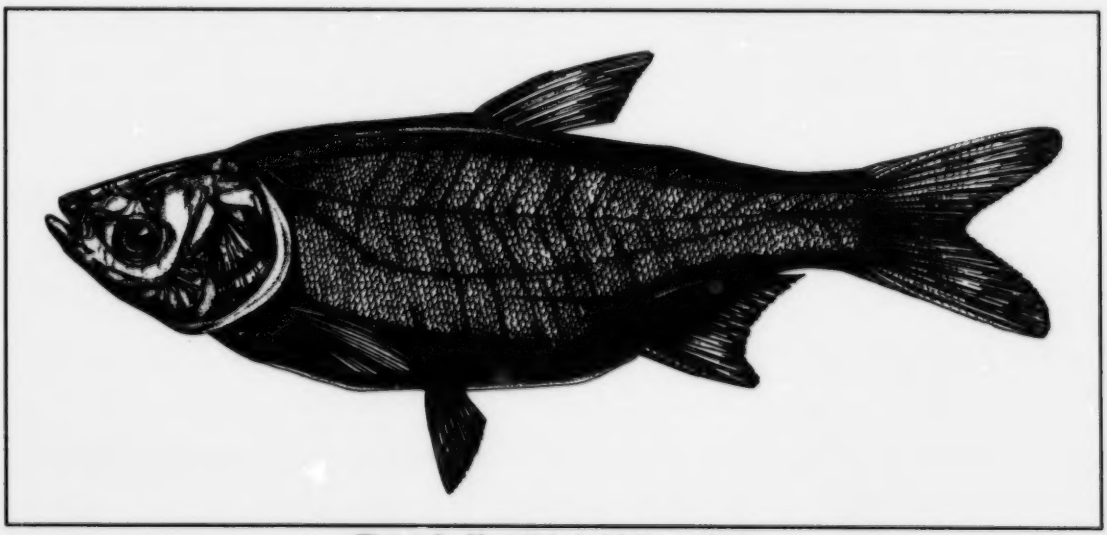

Figure 8. *Hypophthalmichthys molitrix*

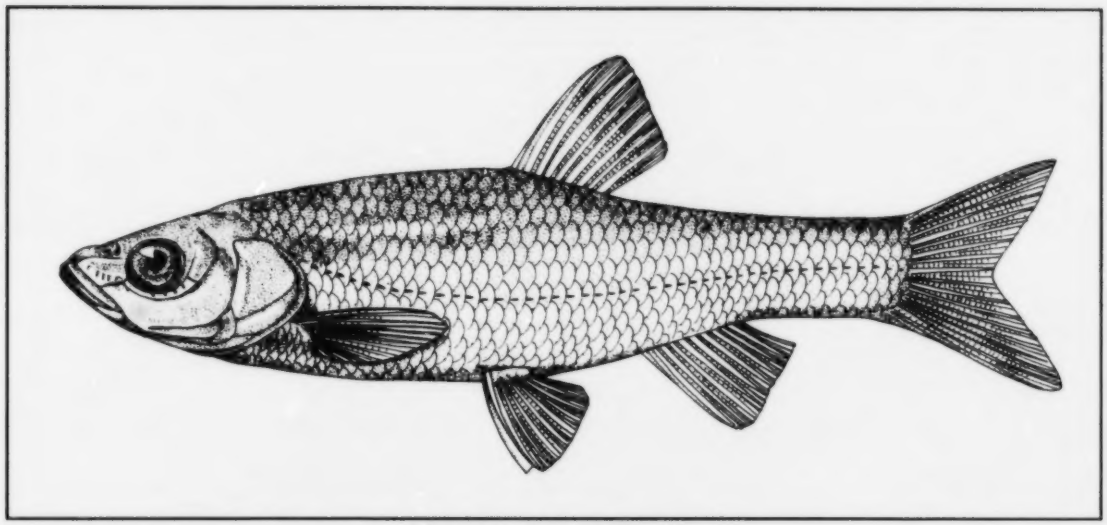

Figure 9. *Leuciscus lepidus*

39. *Iranocypris typhlops* Bruun and Kaiser, 1944
40. *Leuciscus cephalus* (Linnaeus, 1758)
Synonyms: *Leuciscus orientalis* Nordmann, 1840; *Squalius berak* Heckel, 1843; *Squalius cephalopsis* Heckel, 1843; *Squalius turcicus* De Filippi, 1865
41. *Leuciscus lepidus* (Heckel, 1843)
Synonyms: *Alburnus doriae* De Filippi, 1865; *A. maculatus* Keyserling, 1861
42. *Typhlogarra widdowsoni* Trewavas, 1955

Family 4. Cobitidae

1. *Cobitis taenia* Linnaeus, 1758
2. *Cobitis elazigensis* Coad and Sarieyyüpoglu, 1988
3. *Nemacheilus* sp.
4. * *Nemacheilus angorae* Steindachner, 1897
5. * *Nemacheilus bampurensis* Nikolsky, 1899
6. *Nemacheilus frenatus* (Heckel, 1843)
N. f. afrenatus Battalgil, 1942 is reported as the Tigris River basin subspecies.
7. *Nemacheilus kermanshahensis* Banarescu and Nalbant, 1966
8. *Nemacheilus malapterurus* (Valenciennes in Cuvier and Valenciennes, 1846)
9. *Nemacheilus smithi* Greenwood, 1976
10. *Nemacheilus tigris* (Heckel, 1843)
Synonym: *N. argyrogramma* (Heckel, 1849)(F. Krupp, in. litt., 1990).
11. *Turcinemacheilus kosswigi* Banarescu and Nalbant, 1964

Order 4. Silurifomes
Family 5. Ictaluridae

1. # *Ictalurus nebulosus* (Le Sueur, 1819)

Family 6. Bagridae

1. *Mystus pelusius* (Solander in Russell, 1794)
Synonyms: *Macrones halepensis*

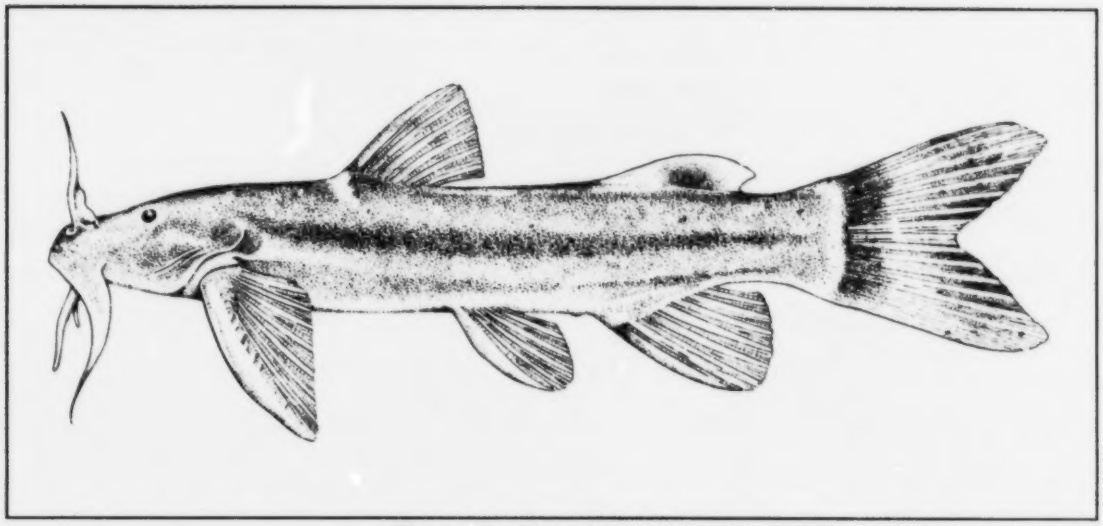

Figure 10. *Glyptothorax silviae*

Valenciennes in Cuvier and Valenciennes, 1839; *Macrones aleppensis* Günther, 1864; *Macrones colvillii* Günther, 1874; *Mystus misrai* Anuradha, 1986

Family 7. Siluridae

1. *Silurus glanis* Linnaeus, 1758
2. ? *Silurus triostegus* Heckel, 1843
Probably a synonym of the above.

Family 8. Sisoridae

1. *Glyptothorax armeniacus* (Berg, 1918)
2. *Glyptothorax cous* (Linnaeus, 1766)

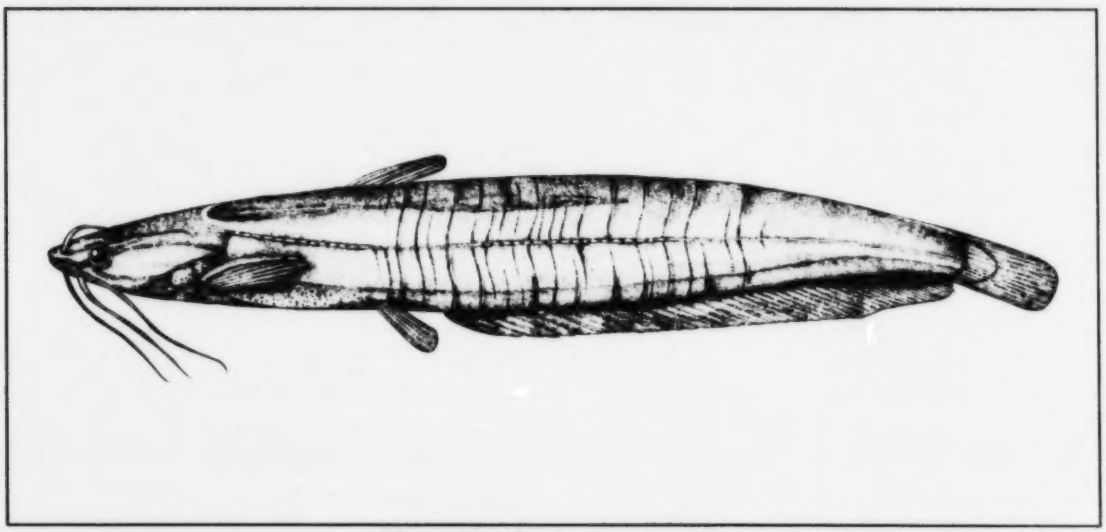

Figure 11. *Heteropneustes fossilis*

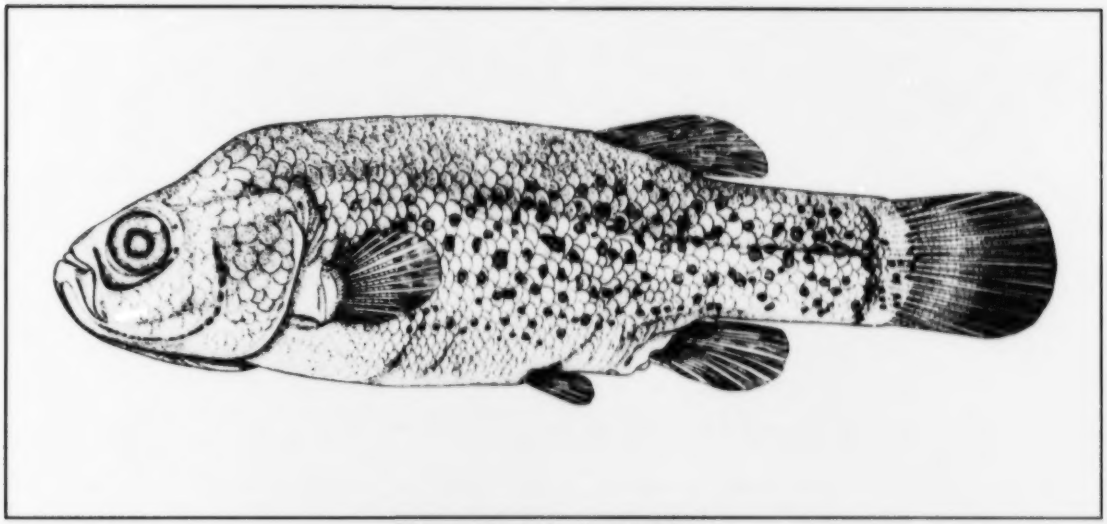

Figure 12. *Aphanius vladykovi*

3. *Glyptothorax kurdistanicus* (Berg, 1931)
4. *Glyptothorax silviae* Coad, 1981
5. *Glyptothorax steindachneri* (Pietschmann, 1913)

Validity of five species questioned (Coad and Delmastro, 1985).

Family 9. Heteropneustidae

1. # *Heteropneustes fossilis* (Bloch, 1794)

Order 5. Salmoniformes
Family 10. Esocidae

1. # *Esox lucius* Linnaeus, 1758

Family 11. Salmonidae

1. # *Oncorhynchus mykiss* (Walbaum, 1792)
2. *Salmo trutta* Linnaeus, 1758

Native to the Tigris-Euphrates basin but also introduced there.

Order 6. Cyprinodontiformes
Family 12. Cyprinodontidae

1. *Aphanius asquamatus* (Sözer, 1942)
2. *Aphanius mento* (Heckel, 1843)

Synonym: *Lebias cypris* Heckel, 1843.

3. *Aphanius dispar* (Rüppell, 1828)
4. *Aphanius sophiae* (Heckel, 1849)

Synonyms: *Lebias crystallodon* Heckel, 1849; *L. punctatus* Heckel, 1849; *Cyprinodon blanfordii* Jenkins, 1910; ?*C. persicus* Jenkins, 1910; *C. pluristriatus* Jenkins, 1910.

5. *Aphanius vladykovi* Coad, 1988

Family 13. Poeciliidae

1. # *Gambusia affinis* (Baird and Girard, 1853)
2. # *Gambusia holbrooki* (Girard, 1859)

G. holbrooki is identified from Iranian waters. It has been regarded in the past as a subspecies of *G. affinis* and this species may also be present depending on the American or other

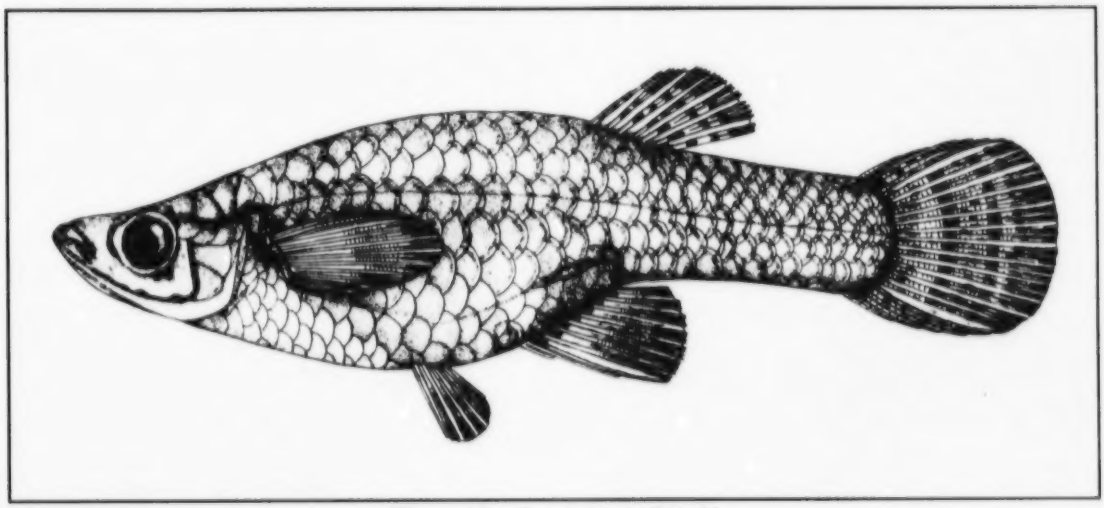

Figure 13. *Gambusia holbrooki*

sources for this introduced species (see Wooten et al., 1988; Tabibzadeh et al., ?1970).

Order 7. Perciformes
Family 14. Centrarchidae

1. # *Micropterus salmoides* (Lacepède, 1802)

Family 15. Percidae

1. # *Stizostedion lucioperca* (Linnaeus, 1758)

Family 16. Cichlidae

1. # *Oreochromis niloticus* (Linnaeus, 1758)

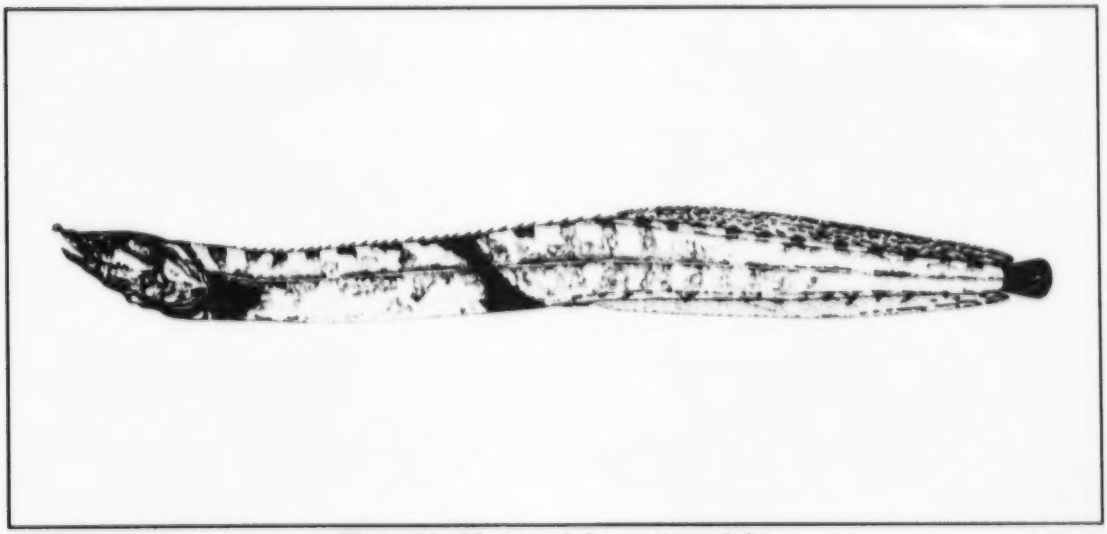

Figure 14. *Mastacembelus mastacembelus*

Family 17. Mugilidae

1. *Liza abu* (Heckel, 1843)
Synonyms: *Mugil hishni* Misra in Hora and Misra, 1943; ? *Mugil pseudotelestes* Pietschmann, 1912

Family 18. Gobiidae

1. *Boleophthalmus dussumieri* Valenciennes in Cuvier and Valenciennes, 1837

2. *Glossogobius giuris* (Hamilton, 1822)
3. *Periophthalmus koelreuteri* (Pallas, 1770)

Family 19. Mastacembelidae

1. *Mastacembelus mastacembelus* (Banks and Solander in Russell, 1794)
Synonyms: *Rhynchobdella haleppensis* Bloch and Schneider, 1801; *Ophidium simack* Walbaum, 1792 (non-binomial).

Rejected Records

Class 1. Osteichthyes
Order 1. Cypriniformes
Family 1. Cyprinidae

1. *Acanthobrama centisquama* Heckel, 1843
Reported by Mahdi (1962). Endemic to the Amik Gölü basin (Coad, 1984; Krupp, 1985d).
2. *Acanthobrama tricolor* (Lortet, 1883)
Reported by Al-Nasiri and Hoda (1976). Endemic to the endorheic Damascus basin (Krupp, 1985d). This species has also been placed in the genera *Leuciscus, Squalius, Rutilus, Orthroleucos* and *Leucaspius*.
3. *Alburnus orontis* Sauvage, 1882
Reported by Al-Nasiri and Hoda (1976). An Orontes River basin species (Krupp, 1985d).
4. *Barbus canis* Valenciennes in Cuvier and Valenciennes, 1842
Reported by Al-Nasiri and Hoda (1976). This species is restricted to the Levant (Krupp, 1985d).
5. *Barbus chantrei* (Sauvage, 1882)
Reported by Al-Nasiri and Hoda (1976). This species is restricted to the Levant and records from the Tigris-Euphrates basin are doubtful (Krupp, 1985b; 1985d).
6. *Barbus cyclolepis* Heckel, 1840
Reported by Banarescu (1977). A species of Black Sea drainages (Ladiges and Vogt, 1979).
7. *Barbus longiceps* Valenciennes in Cuvier and Valencinnes, 1842
Reported by Svetovidov (1949). Endemic to the Levant (Krupp, 1985d).
8. *Barbus lorteti* Sauvage, 1882
Reported by Al-Nasiri and Hoda (1976). Endemic to the Orontes River basin (Krupp, 1985a; 1985d).
9. *Capoeta pestai* (Pietschmann, 1933)
Reported by Shafi et al. (1981). Described from Lake Egridir of western Anatolia (Pietschmann, 1933).
10. *Chalcalburnus chalcoides* (Gueldenstaedt, 1772)
A Caspian Sea basin species (Coad, 1980a).
11. *Chalcalburnus sellal* (Heckel, 1843)
Reported by Mahdi (1962). *Chalcalburnus mossulensis* may be a synonym of this species which is found in the Orontes River basin and the Quwaiq River basin. *Alburnus pallidus* Heckel, 1843 may be a synonym.
12. *Chalcalburnus tarichi* (Pallas, 1811)
Endemic to Lake Van (Kuru, 1971; 1980b). A Tigris-Euphrates record by Kuru (1978-1979) is possibly an error.
13. *Chondrostoma nasus* (Linnaeus, 1758)
Reported by Devedjian (1926). European and Black Sea drainages (Ladiges and Vogt, 1979; Elvira, 1988).
14. *Cyprinion tenuiradius* Heckel, 1849
Reported by Al-Nasiri and Hoda (1976). Endemic to Fars Province in southern Iran.
15. *Garra lamta* (Hamilton, 1822)
Reported by Khalaf (1961). An Indian species (Menon, 1964).
16. *Hemigrammocapoeta nana* (Heckel, 1843)
Reported by Karaman (1971). A Levant endemic (Krupp, 1985d).

17. *Leuciscus spurius* (Heckel, 1843)
Reported by Mahdi (1962). A Levant endemic (Krupp, 1985d).
18. *Phoxinellus zeregi* Heckel, 1843
Reported by Mahdi (1962). This species has also been placed in the genera *Leuciscus* and *Pseudophoxinus*. No valid record for the Tigris-Euphrates basin (Krupp, 1985d).
19. *Xenocypris macrolepidotus* (Heckel)(sic)
Reported by Nümann (1966). This genus is found in China and the specimen concerned was examined by me and proved to be *Acanthobrama marmid*.

Family 2. Cobitidae

1. *Cobitis aurata* (De Filippi, 1865)
A Caspian Sea and Tedzhen River basins species. Record from Iraq (Nalbant, 1963) based on a single specimen which may have been mislabelled (Banarescu, 1973) but also reported in collections from Turkey by Kuru (1971) and Colak (1981) but not apparently by Kuru (1980b).
2. *Cobitis elongata* Heckel and Kner, 1858
This is a Danubian species and *Cobitis bilseli* Battalgil, 1942 from the Beysehir Gölü of western Anatolia is a synonym or subspecies (Banarescu and Nalbant, 1964) or distinct (F. Krupp, in. litt., 1986). Kosswig (1973) reports and Kuru (1980b) maps *C. elongata bilseli* from the Tigris-Euphrates basin without a detailed description to confirm its presence.
3. *Nemacheilus insignis* (Heckel, 1843)
Reported by Banarescu and Nalbant (1964). Restricted to the Levant (Krupp, 1985d).
4. *Nemacheilus panthera* (Heckel, 1843)
Reported by Banarescu and Nalbant (1964). Endemic to endorheic basins near Damascus (Krupp, 1985d).

Marine Fishes Entering Freshwater

A variety of marine species have been reported as entering the Shatt-al-Arab, the confluence of the Tigris and Euphrates rivers, and some penetrate into these rivers also. For the most part, these records are from Iraqi waters. These species are simply presented here in the form of an annotated list to indicate the diversity of marine species which may be encountered in the Tigris-Euphrates basin. The reader is referred to Coad (1990a) for an extensive bibliography on Persian Gulf marine fishes. Al-Hassan and Hussain (1985) discuss the hydrological parameters which influence the penetration of marine fishes into the Shatt al Arab.

Species marked by a * have been recorded from the Persian Gulf or Sea of Oman but recent revisions indicate that these are probably a misidentification.

Class 1. Osteichthyes
Order 1. Clupeiformes
Family 1. Clupeidae

1. * *Ilisha filigera* (Valenciennes in Cuvier and Valenciennes, 1847)
2. * *Ilisha megaloptera* (Swainson, 1839)
3. *Nematalosa nasus* (Bloch, 1795)

Family 2. Engraulidae

1. *Thryssa hamiltoni* (Gray, 1835)
2. * *Thryssa malabarica* (Bloch, 1795)
3. *Thryssa purava* (Hamilton, 1822)
4. *Thryssa setirostris* (Broussonet, 1782)

Family 3. Chirocentridae

1. *Chirocentrus nudus* Swainson, 1839

Order 2. Siluriformes
Family 4. Ariidae

1. *Arius thalassinus* (Rüppell, 1837)

Family 5. Plotosidae

1. *Plotosus lineatus* (Thunberg, 1787)

Order 3. Cyprinodontiformes
Family 6. Hemiramphidae

1. *Hemiramphus* sp.
2. *Rhynchorhamphus georgii* (Valenciennes in Cuvier and Valenciennes, 1846)

The records for *Hemiramphus* species were *H. gaimardi* Valenciennes in Cuvier and Valenciennes, 1846 (a synonym of *Hyporhamphus quoyi* (Valenciennes in Cuvier and Valenciennes, 1846)) (Kanazawa, 1955; Nader and Jawdat, 1977a; 1977b) and *H. xanthopterus* Valenciennes in Cuvier and Valenciennes, 1846 (actually in the genus *Hyporhamphus*) (Al-Nasiri and Hoda, 1975a) but these may have referred to *H. marginatus* (Forsskal, 1775) since these two species are not known to occur in the Persian Gulf (Parin, Collette and Shcherbachev, 1980). Collette (1982) suggests that this

species may be *Hyporhamphus limbatus* (Valenciennes in Cuvier and Valenciennes, 1846) or *Hyporhamphus sindensis* (Regan, 1905).

Family 7. Belonidae

1. *Strongylura strongylurus* (van Hasselt, 1823)

Order 4. Perciformes
Family 8. Serranidae

1. * *Epinephelus tauvina* (Forsskal, 1775)

Family 9. Apogonidae

1. * *Apogon nigripinnis* Cuvier in Cuvier and Valenciennes, 1828
Reported as *A. thurstoni* Day, 1888 by Nader and Jawdat (1977a; 1977b) but Relyea (1981) considers it to be a synonym of the above.

Family 10. Sillaginidae

1. *Sillago sihama* (Forsskal, 1775)

Family 11. Carangidae

1. *Alepes djedaba* (Forsskal, 1775)

Family 12. Leiognathidae

1. *Leiognathus fasciatus* (Lacepède, 1803)

Family 13. Haemulidae

1. *Pomadasys argyreus* (Valenciennes in Cuvier and Valenciennes, 1833)

Family 14. Sparidae

1. *Acanthopagrus berda* (Forsskal, 1775)
2. *Acanthopagrus latus* (Houttyn, 1782)
3. *Petrus belayewi* Misra, 1943
Probably a synonym of *A. berda*.

Family 15. Sciaenidae

1. *Argyrosomus amoyensis* (Bleeker, 1863)
2. * *Johnius carutta* Bloch, 1793
3. *Otolithes ruber* (Schneider in Bloch and Schneider, 1801)
The first species was recorded as *Pseudosciaena sina* (Cuvier, 1830) by Khalaf (1961) but Trewavas (1977) refers this identification to the species indicated.

Family 16. Ephippididae

1. *Drepane punctata* (Linnaeus, 1758)

Family 17. Scatophagidae

1. *Scatophagus argus* (Bloch, 1788)

Family 18. Mugilidae

1. *Liza macrolepis* (Smith, 1849)
2. * *Liza oligolepis* (Bleeker, 1859)
3. *Liza subviridis* (Valenciennes in Cuvier and Valenciennes, 1836)
4. *Liza vaigiensis* (Quoy and Gaimard, 1824)
Records of *L. dussumieri* (Valenciennes in Cuvier and Valenciennes, 1836), if correctly identified, are referred to *L. subviridis* (see Thomson and Luther in Fischer and Bianchi, 1984).
5. *Mugil cephalus* Linnaeus, 1758

Family 19. Polynemidae

1. *Eleutheronema tetradactylum* (Shaw, 1804)

Family 20. Gobiidae

1. *Acentrogobius dayi* Koumans, 1955
2. *Periophthalmus waltoni* Koumans, 1955
3. *Periophthalmus weberi* Eggert, 1935
4. *Scartelaos tenuis* (Day, 1876)

The identity of various gobies reported from freshwaters is in doubt and their allocation to genera varies between authors. Murdy (1989) does not record *P. weberi* from the Persian Gulf. *B. dentatus* Valenciennes in Cuvier and Valenciennes, 1837 is a synonym of *B. dussumieri* (see in freshwater list above)(Murdy, 1989). *Scartelaos tenuis* is a synonym of *S. viridis* (Hamilton, 1822)(correctly *S. histophorus* (Valenciennes in Cuvier and Valenciennes, 1837)) according to Relyea (1981) but Koumans (1955) and Murdy (1989) regard it as distinct. *Periophthalmus waltoni* is a synonym of *P. koelreuteri* (Pallas, 1770) according to Relyea (1981) but Murdy (1989) recognises it as distinct. The identification of *A. dayi* from specimens near Basrah is tentative (R. Winterbottom, in. litt., 1987; Coad, 1990b).

Family 21. Stromateidae

1. *Pampus argenteus* (Euphrasen, 1788)
2. *Pampus chinensis* (Euphrasen, 1788)

Order 5. Pleuronectiformes
Family 22. Cynoglossidae

1. *Cynoglossus arel* (Schneider in Bloch and Schneider, 1801)
2. *Cynoglossus lingua* (Hamilton, 1822)

Family 23. Soleidae

1. *Euryglossa orientalis* (Schneider in Bloch and Schneider, 1801)
2. * *Solea heinii* Steindachner, 1907

S. heinii is not reported from the Persian Gulf and Sea of Oman by Menon in Fischer and Bianchi (1984).

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Note that the orthography in Turkish is not perfect because of restrictions on computer generation of letters.

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